REMARKS

OBJECTIONS

Applicants wish to express appreciation to the Examiner for noting misspellings of "match" in PGPub paragraphs 10, 28 and 32, and "mixing" in paragraph 63. Amended paragraphs 10, 28, 32 and 63 have been provided to replace those objected to by the Examiner.

Claims 1, 21, and 23 are objected for the informalities of the misspelling of "match". Claims 1, 21, and 23 have been amended to correct the spelling and overcome the objections. Applicants again wish to express appreciation for noting the misspellings in the claims.

CLAIM REJECTIONS

Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,000,872 to Olah in view of US 6,030,424 to Matsumoto.

Applicants traverse, respectfully submitting that the present invention is different from the references, Olah and Matsumoto, and includes distinguishable features, detailed below, which are not disclosed in the references.

Claims 1 and 17 are amended to recite, in part, "a mixer pump connected to the mixing ejector for being supplied with the raw material oil and connected to a lower end of the emulsion tank for being supplied with the emulsified fuel, to re-mix the raw material oil supplied from the mixing ejector with the emulsified fuel supplied from the emulsion tank". Claims 21 and 23 are amended to recite, in part, "a mixer pump connected to the second mixer for being supplied with the raw material oil and connected to a lower end of the emulsion tank for being supplied with the emulsified fuel, to remix the raw material oil supplied from the second mixer with the emulsified fuel supplied from the emulsion tank". Support for the amendments appear in the specification at least in FIG. 1 and paragraphs [0054], [0066]-[0068], [0075]-[0076] and [0079]. No new matter is added.

More specifically, claim 1 recites that a mixer pump 28 is connected to a mixing ejector 27 for being supplied with the raw material oil and is connected to a emulsion tank 30 for being supplied with the emulsified fuel, and a second mixer 29 is connected to the mixer pump 28 for

re-mixing the raw material oil and the emulsified fuel and supplying a re-mixed result to the emulsion tank 30 through a circulation electric heater 32 within the emulsion tank 30.

Hence, the apparatus of the present invention may perform functions of shearing finely dispersed particles within the emulsified fuel, making the composition ratio of the emulsified fuel uniform, and stably supplying the emulsified fuel to a boiler according to frequently varied fuel demand, by including the circulation system composed of the emulsion tank 30, the mixer pump 28, the second mixer 29, and the circulation electric heater 32. Here, the emulsion tank 30 functions as a storage tank and a mixing tank at the same time, and thus the apparatus may stably supply the emulsified fuel in a uniform state to the boiler without a separate storage tank.

On the other hand, Olah does not disclose any configuration which enables recirculation of the emulsified fuel stored in an emulsion tank 122. Though a static mixing device 108 is provided with a recycle pump 99, these are just to maintain a normal working state of the static mixing device 108 since the recycle pump 99 will stop when the emulsified fuel begins to be produced.

With actual variation of raw material fuel, variation of operating conditions, and controlling error etc., the state and quality of the emulsified fuel might be different depending on a time of production. When such emulsified fuels are stored in a storage tank as they are, the emulsified fuels are likely to become non-uniform emulsified fuels as a whole, and further, such fuels may cause an incomplete combustion in a burner. However, Olah fails to provide any solution for this, as recited in claim 1.

In addition, Matsumoto discloses a mixing tank 51 and a storage tank 61, which are separately provided, and neither the mixing tank 51 nor the storage tank 61 has a configuration which enables recirculation of the emulsified fuel.

The reason why the mixing tank 51 and the storage tank 61 are separately provided in the system of Matsumoto is because the storage tank 61 has to store the emulsified fuel to be used for the burner during the time of producing the emulsified fuel at the mixing tank 51. Therefore, the system of Matsumoto inevitably provided with the two tanks separately, and thus it is totally

different from the apparatus of the present invention, which does not need to include a storage tank separately.

Accordingly, Applicants submit that claim 1 of the present invention is patentable over Olah and Matsumoto. Further, dependent claims 2-16 are patentable for at least the same reasons given for claim 1.

Claim 17 also includes a circulation system of the emulsion tank, the mixer pump, the second mixer and the circulation electric heater, and thus we feel that claim 17 and all its dependent claims are patentable over Olah and Matsumoto based upon a similar analysis as for Claim 1.

Claim 21 also includes a circulation system of the emulsion tank, the mixer pump, the circulation electric heater and the third mixer, and thus claim 21 and its dependent claim 22 are patentable over Olah and Matsumoto based upon a similar analysis as for claim 1.

Claim 23 also includes a circulation system of the emulsion tank, the mixer pump, and the third mixer, and thus claim 23 and its dependent claim 24 are patentable over Olah and Matsumoto based upon a similar analysis as for claim 1.

CONCLUSION

Consequently, it is respectfully requested that the Examiner withdraw all of the outstanding objections and rejections and provide an indication of the allowability of each of the pending claims 1-24.

It is believed that no fees are due with this submission. Please ensure that Attorney Docket No. 7672-101/10504400 is referred to should there be a matter relating to any payments or credits for this case.

Should the Examiner have any questions, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,

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